

Amendments to the Claims

This listing of claims will replace all prior versions and listings of claims in the application:

Claim 1. (withdrawn) A method for impregnating a pressure conduction composite with an additive comprising the step of suffusing said pressure conduction composite within a bath of said additive.

Claim 2. (currently amended) A current control device comprising:

(a) two electrodes; and

(b) a pressure conduction composite composed of a conductive filler within a non-conductive matrix disposed between said electrodes, said electrodes communicating a compressive load applied onto said electrodes into said pressure conduction composite, ~~said pressure conduction composite is porous and filled with a temperature sensitive material capable of exerting a temperature dependent force~~ having a plurality of columnar cavities each traversing said pressure conduction composite and intersecting said electrodes, each said columnar cavity having a temperature sensitive material therein and contacting said electrodes, said temperature sensitive material in a gasless fashion expanding when said pressure conduction composite is heated and contracting when said pressure conduction composite is cooled.

Claim 3. (original) The current control device of claim 2, wherein said electrodes are porous.

Claim 4. (currently amended) A current control device comprising:

(a) a pressure plate electrically nonconductive and movable;

(b) a plate electrically nonconductive and immovable; and

(c) a pressure conduction composite composed of a conductive filler within a non-

conductive matrix disposed between said pressure plate and said plate, said pressure plate communicating a compressive load applied onto said pressure plate into said pressure conductive composite, said pressure conduction composite having a plurality of columnar cavities each traversing said pressure conduction composite and intersecting said pressure plate and said plate, each said columnar cavity having a temperature sensitive material therein and contacting said pressure plate and said plate, said temperature sensitive material in a gasless fashion expanding when said pressure conduction composite is heated and contracting when said pressure conduction composite is cooled.

Claim 5. (currently amended) The current control device of claim 4, wherein said pressure plate, and said plate, ~~and said pressure conduction composite~~ are porous.

Claim 6. (original) The current control device of claim 4, furthering comprising two electrodes separately disposed, said pressure conduction composite contacting said electrodes and providing an electrical path between said electrodes when compressed.

Claim 7. (currently amended) A current control device comprising:

- (a) at least two pressure plates electrically nonconductive and movable; and
- (b) a pressure conduction composite composed of a conductive filler within a non-conductive matrix disposed between said pressure plates, said pressure plates communicating a compressive load applied onto said pressure plates into said pressure conductive composite, said pressure conduction composite having a plurality of columnar cavities each traversing said pressure conduction composite and intersecting said pressure plates, each said columnar cavity having a temperature sensitive material therein and contacting both said pressure plates, said temperature sensitive material in a gasless

fashion expanding when said pressure conduction composite is heated and contracting when said pressure conduction composite is cooled.

Claim 8. (currently amended) The current control device of claim 7, wherein said pressure plates ~~and said pressure conduction composite~~ are porous.

Claim 9. (original) The current control device of claim 7, furthering comprising two electrodes separately disposed, said pressure conduction composite contacting said electrodes and providing an electrical path between said electrodes when compressed.

Claim 10. (currently amended) The current control device as in one of claims 2-9, further comprising at least one actuator comprised of a ~~piezoelectric~~ material responsive to an electrically controlled field, said actuator applies said compressive load.

Claim 11. (withdrawn) The current control device as in one of claims 2-9, further comprising at least one actuator comprised of a peizoceramic material, said actuator applies said compressive load.

Claim 12. (withdrawn) The current control device as in one of claims 2-9, further comprising at least one actuator comprised of an electrostrictive material, said actuator applies said compressive load.

Claim 13. (withdrawn) The current control device as in one of claims 2-9, further comprising at least one actuator comprised of an magnetostrictive material, said actuator applies said compressive load.

Claim 14. (withdrawn) The current control device as in one of claims 2-9, further comprising at least one actuator comprised of a shape memory alloy, said actuator applies said compressive load.

Claim 15. (withdrawn) The current control device as in one of claims 2-9, further comprising at least one piezo-controlled pneumatic actuator, said actuator applies said compressive load.